

CLAIMS

What is claimed is:

1. An apparatus for controllably obstructing and permitting airflow through a vent of a forced air system, the apparatus comprising:
 - an inflatable and deflatable bladder;
 - a nipple coupled to the bladder and having a hole extending through the nipple and into airflow communication with an interior of the bladder;
 - a rigid strap for coupling to the vent;
 - an air tube coupled to the nipple; and
 - a clamp coupling the air tube to the strap.
2. The apparatus of claim 1 further comprising:
 - a pin piercing the nipple and the air tube to couple the air tube to the nipple.
3. The apparatus of claim 2 wherein:
 - the pin pierces through an inner airflow diameter of the air tube.
4. The apparatus of claim 2 further comprising:
 - a band securing the pin to the nipple.
5. The apparatus of claim 4 wherein:
 - the band is crimped onto the nipple in a position over the pin.
6. The apparatus of claim 2 further comprising:
 - a transverse hole pre-formed through the nipple for accepting the pin.
7. The apparatus of claim 1 wherein:
 - the strap is adapted for coupling to the vent at an end of the strap away from the clamp.
8. The apparatus of claim 1 wherein:
 - the bladder is secured to the vent only indirectly by the air hose.

1 9. The apparatus of claim 1 further comprising:
2 a mounting clamp coupling the nipple to the strap.

1 10. The apparatus of claim 1 wherein:
2 the bladder has a donut shape.

1 11. The apparatus of claim 10 wherein the vent is located directly on a trunk which also has
2 additional vents or ducts downstream of the vent, and the apparatus further comprises:
3 a roofed passageway disposed within the trunk;
4 wherein the donut shaped bladder is disposed beneath the roofed passageway and
5 surrounding the vent.

1 12. A pneumatic bladder assembly for use as an airflow control mechanism in an HVAC
2 system, in which an air pump selectably provides one of pressure and vacuum to an air tube
3 extending through ductwork of the HVAC system, the pneumatic bladder assembly comprising:
4 an inflatable and deflatable bladder having a nipple for coupling to the air tube; and
5 a pin piercing the nipple and the air tube, thereby securing the air tube to the nipple.

1 13. The pneumatic bladder assembly of claim 12 further comprising:
2 a band surrounding the nipple and the pin to prevent the pin from dislodging from the
3 nipple.

1 14. The pneumatic bladder assembly of claim 12 further comprising:
2 a rigid strap for coupling to the ductwork; and
3 a clamp coupled to the strap, for coupling to the air tube.

1 15. The pneumatic bladder assembly of claim 12 wherein:
2 the pin pierces through an inner diameter of the air tube, wherein the pin is in contact
3 with the pressure and vacuum.

1 16. The pneumatic bladder assembly of claim 12 wherein:
2 the bladder has a donut shape.

1 17. The pneumatic bladder assembly of claim 16 further comprising:
2 a roof, couplable to the ductwork above a vent hole in the ductwork, and surrounded by
3 the donut shaped bladder, wherein when the bladder is inflated, the bladder seals a space
4 between the roof and the ductwork, thereby preventing conditioned air from passing from the
5 ductwork out the vent hole.

1 18. The pneumatic bladder assembly of claim 17 wherein:
2 the roof comprises a substantially planar member; and
3 a plurality of bolts supporting the roof.

1 19. The pneumatic bladder assembly of claim 12 further comprising:
2 a clamp for securing the air tube to the ductwork, whereby the bladder is hung from the
3 clamp in a substantially vertical duct.

1 20. An inflatable and deflatable bladder comprising:
2 a plurality of panels coupled together to form a flexible bladder;
3 a support block coupled to one of the panels and having a hole which passes through the
4 support block and through the one panel to provide airflow communication to an interior of the
5 bladder;
6 an air tube disposed within and forming a substantially airtight seal with the hole; and
7 a clamp securing the air tube to the support block, to provide strain relief for the tube to
8 prevent the tube from being pulled out of the hole.

1 21. The bladder of claim 20 wherein:
2 the hole is equipped with barbs for retaining the air tube.